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THE next convention of the American Institute of Architects will take place at Chicago on the 20th and 21st inst., coincident with the inaugural exercises of the World's Columbian Exposition.

THE demands upon our space this month preclude the publication in this number of more than one of the instructive papers read at the recent convention of the Province of Quebec Association of Architects. We hope to be able to present the others in our November number.

THE architects of the Province of Quebec are complaining of the action of the Provincial Government in imposing upon them a professional tax, thus placing them on the same footing as lawyers and doctors, while at the same time refusing to their Association the rights and privileges accorded to the other professions. They rightly object to being recognized as a profession for taxation purposes only.

THE concrete floors in the new Royal Victoria Hospital, Montreal, although as yet subject to no wear, are full of holes, and will probably have to be replaced by something more substantial, such as granolithic. The difficulty appears to be that the concrete is too rich, and the layer is of two great depth. A very coarse grade of sand is required to make good concrete, and this cannot be obtained in the vicinity of Montreal.

THE burden of taxation imposed upon manufacturers, resulted a few years ago in the removal of a number of factories from Toronto to suburban towns and villages. One of the greatest needs of the city to-day is a greater number of manufacturing industries affording employment to the artisan class. It is hoped that the by-law under which manufacturing plant will hereafter be exempt from taxation, will induce manufacturers to locate in a city which has many other advantages to offer.

THE severity of the climate in winter in the Province of Quebec, calls for certain distinctive requirements in the construction of buildings, especially residences, to ensure the stability of the structures and the comfort of the inmates. For example, a double roof has been found to be an essential in house construction. With a single roof, the snow, which there falls in such abundance, would melt and cover the roof and sides of the house with ice. To avoid this, the roof is made double, with an air space between. Thus the upper roof receives no warmth, and the snow usually, crisp and dry, instead of being melted, is constantly blown away by the wind.

SEPTEMBER 30th was the date set for the close of the preliminary competition for designs for new the public buildings which are proposed to be erected at Victoria, B. C. All the designs received will be submitted to two non-competing architects, who, in conjunction with the Chief Commissioner of Lands and Works, will advise which five designs shall be selected for a final competition, and in the final competition, which design, in their opinion, should be placed first, the author of which will then be entrusted with such portions of the works as the government may decide to proceed with, on the usual terms. The authors of the five designs selected for the final competition will be paid an honorarium each of \$750. The cost of the building must not exceed within ten per cent., the sum of \$500,000.

SEVERAL boiler explosions, attended with disastrous results to property and human life, have recently taken place in various parts of Canada. The most recent accident of this nature occurred a few days ago in the basement of one of the large business buildings in Hamilton. One of the large boilers used for heating the building exploded, wrecking a second boiler and setting fire to the premises. The fire department fortunately succeeded in putting the fire out. The boiler must have exploded under a very low pressure of steam, otherwise the results would certainly have been more serious. Occurrences of this kind emphasize the need for a higher standard of proficiency on the part of persons entrusted with the care of steam plants. Steam boilers in the hands of incompetent persons are almost

as dangerous in the basements of buildings as a package of dynamite. The law should require persons who aspire to take charge of steam boilers to show by examination that they possess the knowledge which would qualify them for the position, and a penalty should be imposed on persons assuming the duties of such a position without having undergone examination. Unless some provision is made which will insure competency, we may expect to hear of disasters even greater than those which have already occurred.

THE class of persons who regard architects as the possessors of but little knowledge that is not shared by the public at large, and their services as being of trifling value, while steadily diminishing, is by no means extinct, even in our cities. While few persons can be found who consider themselves competent to be their own physician in case of serious illness, and few also who would undertake to act as their own lawyer in a case involving important interests, there may yet be found any number who believe themselves competent to be their own architect, and who with the object of saving architects' fees, will undertake to plan and superintend the erection of buildings in which thousands of dollars of their capital is to be invested. It is scarcely necessary to say that such attempts almost invariably result in expensive blundering and life-long regret; notwithstanding, there can usually be found somebody else prepared to repeat the experiment. Our attention was drawn to a case of this kind the other day. A well-to-do resident of a Canadian city decided upon erecting a residence in keeping with his position, and having ideas of his own on the subject, concluded to be his own architect. Accordingly he drew up a plan to his liking, and set men to work to take out the excavation and build the foundation walls. At the completion of this stage of the work, he found himself confronted by difficulties which he had not foreseen, and which his want of knowledge made it impossible for him to overcome. In this extremity he found his way to an architect's office, and asked to be assisted out of the dilemma in which his conceit had placed him. On examining his client's drawing, the architect found a cellar with a twelve foot ceiling, a chimney with a flue less than half the size required to carry off the smoke from the furnace, and other defects equally glaring. After much thought the architect succeeded in bringing order of chaos, and it is safe to say that the number of those who think they know all about architecture has been reduced by one.

THE third annual convention of the Province of Quebec Association of Architects, to a report of the proceedings of which much space is devoted in this number, was in some particulars the most successful which has been held since the inception of the organization. It included an exhibition of drawings which was a source of much interest, and which it is hoped will be made an important feature of future meetings. For the first time the members had the pleasure of listening to a number of instructive papers contributed by members of the Association. The visit of inspection to various public buildings recently completed and in course of erection was a feature of the occasion which proved to be full of enjoyment and profit to every one who participated. The banquet afforded opportunity for the expression of some thoughtful remarks regarding the Association's past history and future aims. In these particulars the convention was a gratifying success. In point of attendance, it was somewhat disappointing. A large number of the architects of the city who are members of the Association were conspicuous by their absence. We regret to have to record this fact, which reveals an apathy on the part of the Absentees concerning the welfare of the association which must prove a serious hindrance to its progress. It is a pleasure to know, however, that a considerable number of the members are earnestly desirous of assisting by every means in their power to place the organization in the position to accomplish the objects for which it was called into existence. Much has already been accomplished, and a work of incalculable advantage may be done if every member will resolve to faithfully discharge his responsibility, even though he may be obliged to do so at the cost of some personal sacrifice. At future meetings the opportunity for a profitable discussion upon the papers presented, should be afforded, as in this way information of great value may be elicited. The Association enters upon the new year under the guidance of an efficient staff of officers, and should at the close of the current year, be able to show a marked advance in the direction of its ultimate goal. We hope to see the classes for students revived at an early date, and the students and members of the Association heartily co-operating to make them of the greatest possible interest and value.

ILLUSTRATIONS.

UNITED EMPIRE LOYALIST MEMORIAL CHURCH, ADOLPHUS-TOWN, ONT.—POWER & SON, ARCHITECTS, KINGSTON, ONT.
HOUSE ON JAMESON AVE., TORONTO, FOR MR. W. P. ATKINSON—EDWARDS & WEBSTER, ARCHITECTS.
CHURCH OF ST. MARY MAGDELENE, MANNING AVE., TORONTO—DARLING, SPROATT & PEARSON, ARCHITECTS.
DRAWING ROOM MANTEL—A. C. HUTCHISON, ARCHITECT, MONTREAL.

PROVINCE OF QUEBEC ASSOCIATION OF ARCHITECTS.

THE third annual convention of the Association was held in the Association rooms, St. James Street, Montreal, on Thursday and Friday, Sept. 29th and 30th.

The President, Mr. F. X. Berlinguet, of Quebec, presided at the first session, which opened at 10 o'clock.

The following members were in attendance:

F. X. Berlinguet, President, in the chair; J. Nelson, first Vice-President; A. F. Dunlop, D. Ouellet, A. T. Taylor, V. Roy, J. F. Peachey, H. Stavely, A. Gendron, S. Lesage, C. Baillairgé, J. J. Browne, J. Z. Resther, H. C. Nelson, J. R. Rhind, A. Boileau, A. Raza, E. Mann, J. Perrault, M. Perrault, H. M. Perrault, A. C. Hutchison, L. Z. Gauthier, J. Venne, and G. Languedoc.

An interesting collection of architectural drawings adorned the walls. The list of subjects and exhibitors is as follows:

Eric Mann—"Evans Buildings, Montreal"; "Design for Scotch, Baronial Mansion."

Perrault & Mesnard—"Longueuil Church"; Monument Nationale, Montreal"; "Laval University."

A. C. Hutchison—"Sketch for Church"; "Design for Bank"; "High School Building, Montreal"; "Sketch of Mantel."

J. J. Browne—"Presbyterian College, Montreal"; "Residence, St. John, N. B."; Stormont Cotton Mill"; "Monument, Montreal"; "Design for Fraser Buildings."

A. T. Taylor—"Second Premiated Design for Municipal Buildings, Glasgow"; "Physics Buildings, McGill College"; "McDonald Buildings, McGill College"; "Montreal Branch Bank Building, Montreal."

Wright & Son—"Design for Bank, Montreal"; "Residence, Dorchester Street, Montreal."

A. F. Dunlop—"Temple Building, Montreal"; "St. James Methodist Church"; "Dunlop of Dunlop, Ayrshire, Scotland"; "Residence, Dorchester Street, Montreal."

J. Nelson & Son—"Design for Lennoxville College."

F. X. Berlinguet—"Interior of Beaufort Church."

Jos. E. Huot—"Church, St. Anne de Beaupre."

Jos. Venne—"Front elevation of Church."

J. C. A. Heriot—"Design for City Front"; "Design for Residence"; "Design for Country House."

D. Ouellet—"Exterior and Interior of St. Joseph's Church, Quebec."

J. W. & E. C. Hopkins—"Merchants' Bank, Montreal"; "Warehouse, Craig Street, for J. C. Wilson"; "Interior of Church, Dublin."

J. F. Peachy—"Interior St. John's Church, Quebec"; "Design for Post Office, Quebec."

C. Baillairgé—"Interior of Church"; "Monument Aux Braves."

After a few prefatory remarks by the President, Mr. Roy rose to complain of defects in translation in the newly printed copies of the constitution and by-laws. To prevent the recurrence of such defects in future, he suggested that the Association should appoint a Secretary who understood both languages, and mentioned the name of a gentleman who would suitably fill the position. The officers had done everything in their power for the success of the Association, and if the defect mentioned were remedied, the success of the Association for the coming year would be insured.

The minutes of the annual meeting held in Quebec on the tenth day of September, 1891, were read and confirmed.

The following report of the Council was submitted and re-read in French and English:

Your Council since the annual meeting held in Quebec on the tenth day September, 1891, held ten regular and seven special meetings, the attendance being as follows: A. C. Hutchison, 17; W. E. Doran, 13; A. T. Taylor, 12; V. Roy, 11; J. Nelson, 11; A. Raza, 11; A. F. Dunlop, 11; C. Clift, 6; F. X. Berlinguet, 5; J. F. Peachy, 3; M. Perrault, 1; J. J. Browne, 1.

At the first meeting of the Council held after the last annual meeting, a committee of two was appointed to consider the question of building inspection in this province and to report. After some time one member of the committee unable to obtain a meeting with his colleagues, submitted a report giving his views as to the lines on which laws regulating building should be framed and suggesting the appointment of another committee to more fully consider the matter. The Council, owing to the difficulty of getting members who could give the time necessary to serve on this committee, have not been able to reappoint it.

Messrs. Berlinguet and Baillairgé, of Quebec, and Messrs. V. Roy, W. T. Thomas and A. T. Taylor, were appointed as a Board of Examiners. Previous to the semi-annual examination held in Montreal in the month of July, two vacancies occurred in the Board; one by the resignation of Mr. V. Roy, and the other by the decease of Mr. W. T. Thomas. The vacancies were filled by the appointment of Messrs. J. Haynes and A. C. Hutchison.

Two examinations were held during the year: one in Quebec in January, and the other in Montreal in July. At the former, one candidate, Mr. Remi Lemay presented himself for final examination; having successfully passed it, his name was entered on the register. At the examination held in Montreal six candidates presented themselves for the preliminary examination to enable them to enter upon the study of Architecture. Four of the candidates succeeded in passing the examinations.

In the month of May last, Mr. C. Clift tendered his resignation as Secretary. The Council regretted having to accept of it in view of the valuable services he had rendered the Association in its inception and formation.

Mr. A. C. Hutchison, a member of the Council, was appointed Secretary, and the vacancy thus caused in the Council was filled by the appointment of Mr. J. J. Browne.

Early last fall the Council, with a view of bringing the members of the Association together at frequent intervals for mutual improvement and interchange of opinions, arranged for monthly meetings at which papers of interest to the profession would be read and discussed. Papers were prepared

and read by Messrs. Hutchison, Doran and Haynes. The Council regret that the opportunities thus afforded the members for meeting together were not taken as full advantage of as they might have been, but hope that the new Council will afford such opportunities during the ensuing year, that the members will take full advantage of them.

With a view to afford student associations opportunities of advancing their studies in Architecture, lectures were delivered weekly for three months on the styles of Architecture, and a class for the study of pen and ink drawing was formed. These lectures and classes were not as largely attended as was expected, but as the formation of these classes last winter was somewhat of an experiment, the Council hope that if the lectures and classes are continued during the ensuing winter months, that students will fully appreciate the facilities of study thus afforded them.

The Council regret the delay that has taken place in the printing of the By-laws and Act of Incorporation, but as a copy has now been furnished to each member, the want of them which may have been felt has been removed.

The tariff of professional charges and practice prepared by the preceding Council in conformity with the Act and presented to His Honor the Lieutenant Governor in Council for ratification was, owing to the change which took place in the Government of the Province last February, left in abeyance, and as your Council did not consider the time opportune to present it to the new Government immediately after their accession to office, they did not do so until after the close of the session: in the meantime another clause was added fixing the charge for valuations of property. The tariff as amended was laid before the Government on the first opportunity that presented itself, and its ratification was personally requested by the members of the Council who waited upon the members of the cabinet. Since then a correspondence has taken place with the Honorable Provincial Secretary respecting the tariff of charges and professional practice of architects in the United States and in Europe, and it is hoped that a confirmation of our tariff will soon be reached.

During the last session of the Legislature a Bill was introduced providing for the granting of certain privileges to contractors, architects, workmen, and parties furnishing materials for building. As the privileges to architects provided for in the Bill had not been asked for, and are considered unnecessary by the Council, several members of the Government were communicated with and requested to prevent the Bill from becoming law; it was, however, withdrawn, before discussion upon it took place.

When the office of Sanitary Inspector became vacant by the decease of the late occupant, your Council addressed the city council requesting them to make the salary attached to the office sufficient to secure the services of a thoroughly competent sanitary engineer, and to only appoint one who was thoroughly qualified.

In response to an invitation from the Ontario Association of Architects to attend their annual meeting and dinner last February, Messrs. Clift and Hutchison on behalf of the Council attended and conveyed its greetings.

During the last session of the Dominion Parliament a deputation from the Ontario Association waited upon the Government to urge upon them the enforcement of the Customs Tariff on plans prepared in the United States and sent into Canada. Your Council appointed a deputation to support the Ontario Association in bringing the matter before the Government.

Your Council regret to record the decease of two members of the Association since our last annual meeting, namely Mr. W. T. Thomas, in June, and Mr. W. H. Hodson, last week. Resolutions of regret and condolence were passed by the Council and entered upon its minutes.

The whole respectfully submitted on behalf of the council.

The Treasurer's statement was submitted showing the gross receipts for the year to have been \$1245.53 and the expenditure \$1028.11 leaving a balance on hand of \$217.42. Accompanying the Treasurer's statement was the Auditors' report, stating that they had examined the accounts and found them correct.

It was moved by S. Lesage seconded by H. Stavelly that the reports of the Council, Treasurer and Auditors be adopted. Carried.

The Association then proceeded to ballot for the election of officers for the ensuing year. The election resulted as follows:

President—V. Roy, Montreal.

First Vice-President—J. Nelson, Montreal.

Second Vice-President—H. Stavelly, Quebec.

Treasurer—J. Z. Resther, Montreal.

Secretary—A. C. Hutchison, Montreal.

Members of Council—J. J. Browne, J. Haynes, H. M. Perrault, A. T. Taylor, A. F. Dunlop, Montreal; D. Ouellet, Quebec.

Auditors—W. E. Doran, S. Lesage, Montreal.

It was moved by A. Gendron, seconded by J. Perrault, that the next annual meeting be held in Quebec, the day to be fixed by the council in accordance with the by-laws. Carried.

There being no further business the meeting adjourned to meet again in the afternoon for the reading of papers.

Mr. Taylor desired to thank those who had assisted the Hanging Committee by sending examples of their work. He hoped that their example would be followed by others, and that members would also be found willing to present to the Association architectural books, which would form the nucleus of an instructive library. A vote of thanks to the Hanging Committee was moved by Mr. Brown, seconded by Mr. Rhind, and adopted.

AFTERNOON SESSION.

Mr. Victor Roy, the newly-elected President, called the convention to order and announced that five papers were to be read, the first of which, by Eric Mann, was entitled "Classic Architecture in Relation to Detail, with a Few Notes on Construction in Building."

Mr. Mann explained that the paper he was about to read was originally prepared to be read before the students, and was only presented to the Association owing to his having been unable to prepare something more suitable.

The paper, which is one of especial interest to students of architecture, is printed elsewhere in this number.

Mr. Chas. Baillairgé followed with a paper on "Escape from Buildings in case of fire."

Mr. A. T. Taylor presented a paper on "The Relation and Application of the Sister Arts, Painting, Sculpture, to Architecture," Mr. Rhind a paper on "The Architect as a Business

Man and Artist," and Mr. Hutchison a paper on "The Plenum System of Ventilation as Applied to the New Surgical Buildings of the Montreal General Hospital," the latter being illustrated by a large diagram.

The President expressed satisfaction with the character of the papers to which they had just listened, and suggested that great benefit would result if monthly meetings of the Association could be arranged.

Mr. Hutchison said that such meetings were not a success last year, but he hoped it would be possible to do better in future. Personally, he would be pleased to contribute for the general benefit of the members any points of interest arising out of his experience.

Mr. Brown expressed a desire to see a spirit of greater fellowship prevailing among the members, and an indication of the determination of the Association to fulfil the objects of its existence.

Mr. Taylor having called the attention of the President to the presence of Mr. Curry, President of the Ontario Association of Architects, an invitation was extended to that gentleman to address the meeting.

Mr. Curry, after expressing the pleasure with which he had listened to the lectures, said that one of the greatest drawbacks to the progress of the Ontario Association, and he supposed of this Association also, was the apathy on the part of the members. With a membership of nearly 150 in the Ontario Association, and of nearly 70 in Toronto alone, only about 35 were usually in attendance on the meetings. The reason was, that members placed their personal business first, instead of the interest of the Association. He commended the plan adopted by the Toronto Architectural Guild, the members of which once a month go direct from their offices and dine together at a restaurant, and there discuss in an informal way matters of interest to the profession. The guild was very exclusive, admitting to its membership only desirable men and such as would attend the meetings. Those who failed to attend were dropped from membership. The organization had done much to promote friendship in the profession. The formation of a Dominion Association had been mooted, but he advised that they should endeavor to make a thorough success of the Provincial Associations before attempting the larger undertaking. Unfortunately some members of the Ontario Association, instead of seeking to assist the Association to elevate the standard of the profession, were seemingly only anxious to know what personal benefit was likely to accrue to themselves in return for their fees. These members took a wrong view of the subject. Notwithstanding, from their standpoint even, there were benefits to be derived. The Association library might be pointed to as one such benefit, and one which could be made of increasing value. The test of native building stones recently conducted by the Association was also of decided value to architects. In conclusion, the speaker remarked that goodfellowship and a desire to promote the good of the profession would best promote the success of the Associations.

THE BANQUET.

In the evening a considerable proportion of the members of the Association with a number of invited guests, partook of a banquet at the City Club.

The toasts of Her Majesty, the Queen, and the Lieutenant Governor of the Province of Quebec having been duly honored, letters of regret at not being able to be present, were read from the Hon. Messrs. DeBoucherville, Beaubien, Flynn, Pelletier, Hall, Taillon, Casgrain, and Nantel. Letters of regret had also been received from the members of the Council of the Ontario Association of Architects, the President of which, Mr. Curry, was, however, present. The Secretary was sorry he had had no reply from the Canadian Society of Civil Engineers.

The Chairman: "Gentlemen, I have much pleasure in proposing the toast of 'The Corporation of Montreal,' represented here to-night by our worthy Mayor. It would be superfluous for me to try to speak in favor of the Mayor, for the simple reason that you know him better than I do, I hope he will give a few words of encouragement to this new Association."

The toast was drunk with enthusiasm.

The Mayor: "Mr. President and Gentlemen, I can assure you that I feel proud to be called to respond to the toast of the City and members of the Corporation. First, let me say that I had the honor to be a member of the Provincial Parliament when I think your Association was inaugurated by a charter, which with the assistance of the members for the City of Quebec, we succeeded in having granted. It is a satisfaction to reflect that our action in this regard has borne good fruit. The charter given to your Corporation has in the city of Montreal at least, chartered a body of men whose architectural skill excites the admiration of visitors to our city. It is the practice of some to borrow architectural talent from the other side; but let me say I have erected some buildings, and I always employ a resident architect. (Cheers). I can say as much on behalf of the gentlemen from Quebec. Montreal owes its great position today, as far as buildings are concerned, to the men I see around me, who have erected those noble buildings that are the pride of our city. As far as the Mayor is concerned, he may be only a cipher and figurehead; but let me tell you that the corporation, with all their faults, are trying to make Montreal a place to be admired. Sometimes we may be reproached with

heavy taxation; yet what money we have to spend is, I think, spent in an honest and fair way by the representatives of our city. My friend, Mr. Roy, I am very proud indeed to know that you have been elected to-day President of this grand corporation. You are a credit as a body, and I hope that your society will live and prosper, and that the buildings that you will erect will equal any other buildings in the world."

The Chairman: "Gentlemen, we have a toast to propose, and that toast is a worthy one, for it is the toast of our sister Association of Ontario. (Cheers). I am glad to tell you that we have the President here amongst us, and I hope that next opportunity some of us will be able to return the compliment. (Applause)."

The toast was duly honored.

Mr. Curry: "Mr. President and gentlemen, I have to thank you for the very kindly manner in which you have drunk the toast. I think you have done it much better than we toast the Quebec Association. However, you have one advantage over us, you have better speakers than we have. We are indifferent speakers as a body; I am not by any means the best, but I am not the worst either, so you can judge for yourselves and form an idea of our calibre. I must say I prefer the actual work to the speaking. (Laughter). However, this Association and the Ontario Association have the same work before them, and that is, I think, educational work (applause). We have to educate the profession, and I think those of the profession will admit that there is a heavy work to do in that line. Next we have to educate the public, which I think is a much easier task. Our present trouble consists very largely in the fact that the profession as a body is badly educated. The members are as a whole rather inferior to what they ought to be. This is true of course of every profession, but I think we should strive to raise ours to be the equal of any (applause), and carry it beyond, if it is possible to do so. The architect requires to know everything, especially in the opinion of his client. He is supposed to be a good business man; to know all about construction; to know everything that a sanitary engineer knows—but not as some sanitary engineers know it (laughter). He is also supposed to be versed in heating, ventilation and acoustics—to know how to make a room a certain size in which a speaker can be heard with advantage to himself and to the audience; he must be a thorough draughtsman, and know the history of architecture, and Heaven knows what else (laughter). In the end he has to become a specialist in some one branch or more. At the same time, it is really necessary that an architect should have a knowledge of all the branches that are necessary to the proper erection of buildings. He cannot know much about heating and ventilation unless he knows something of the methods by which they are to be carried out. A man cannot teach others anything, unless he knows something about it himself. An architect should above all things, have a pretty thorough knowledge of art. The question may be asked 'what is art?' That will have to decide itself. We know how our opinions change, we can even see it in the fashions of the day. The hat you wear to-day possibly you would not care to wear five years from now. So it is, we are continually progressing, still we can lay down a rule that what is reasonably good in art to-day will always be good. We can look back through the past and see that what was held to be good in architecture at any time, is always good. If a thing has any merit it will be recognized. Now the question that we have to do with as an Association is, what steps are we to take to produce a better educated lot of men than we ourselves are? It is not sufficient that we should educate men up to a certain standard; we have got to make them perfect within reasonable bounds. We can strive for perfection, although we can seldom or never attain it. There is little encouragement given to a man at present to become proficient. There are several things to discourage him. A man will say to himself, 'I am going to become an architect of merit'; he settles down to work, and devotes himself to study. The result is that he remains unknown, and does not get anything to do. He may be thoroughly competent; but someone else gets the work. Of course opportunities may come that will allow him to force his way to the front, and after that he can climb the ladder to the highest rung. It is our duty to raise the standard of the profession to the highest possible point. And how is that to be done? Well, we have already made considerable progress. Our Associations exist under special acts of the legislatures of our respective provinces. We in Ontario were able to secure a charter that did not give us all we wanted certainly; but which nevertheless improved our position considerably. It is a question how we are to be able to carry out our duties, with the difficulties before us. We, however, hope to carry them out, though we have to make a struggle. We have that word 'registered' inserted in the act, and all our members refuse to use the word. They say that if they are architects, they are architects, and that it is not necessary for them to register or do anything else. If they have studied for their profession, they should be entitled to call themselves architects, and those who have not given the necessary time to the study should call themselves something else, not architects. We do not want to insist that those who wish to build must come to an architect to have the work done; but we do ask that those who have studied and who have become members of the Association, through passing proper examinations or by whatever means may be decided upon, should have the sole right to call themselves architects, and

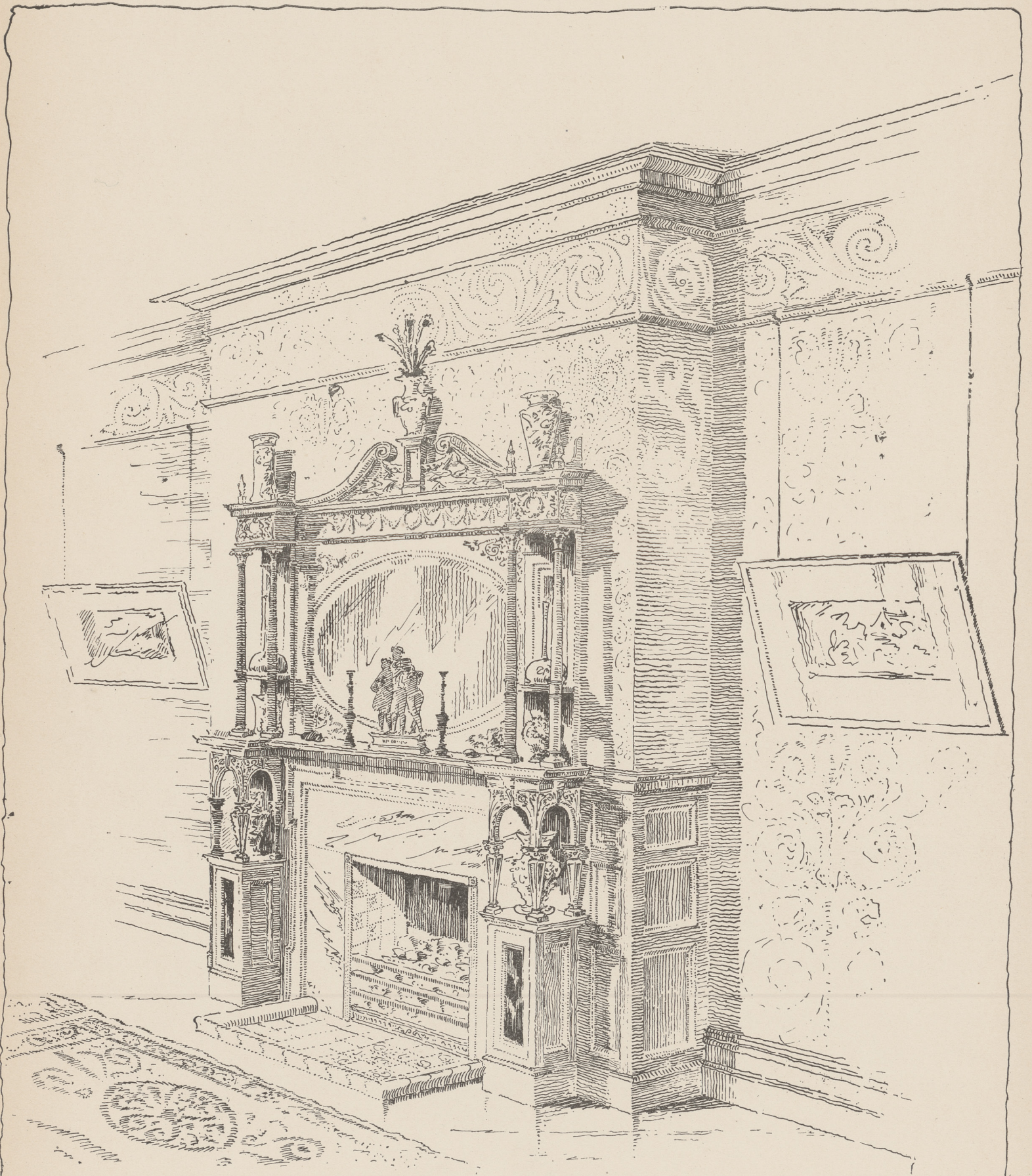
that the public, when employing a man should have some guarantee that he is a capable man and that he is what he represents himself to be. Then, if a man employs an incompetent builder, he will only have himself to thank for it. Now, I think that the Ontario Association of Architects has the desire, first and foremost, to educate. They have not so far taken any steps to make a tariff of rates, or to help themselves individually. We have thought it wiser to pursue an even course, to do what we can for the education of our members. We have now a library sufficient for ordinary purposes, so that the young student is thus saved considerable expense. The thing can be carried on indefinitely; but we cannot do a great deal with a small amount of money. The fees are already high enough, and some members even complain as it is. They want the Council to show them some value. That we cannot do. But this we can do, we never propose to *give* them value; but we propose to show them that they have *got* value. They paid their fees to become members with the object of educating the young members, and in so doing, advancing the profession and making such men an honor to the profession. If they are not prepared to pay fees for that object, then the sooner they retire the better. You, I suppose, are in the same position here. You have members who seek individual to gain by being members of the Association. Such men are not desirable. Only those members are desirable who wish to see the Association progress and see the members become an honor to the profession. It may be very nice to you to profit directly by a brother architect's bungling work; but, after all, these things are a drawback to the profession, and the public point to them as samples of architects' capabilities, so the profession suffers. What we want to see is that when anything is entrusted to any member of the profession, good value is given, and that there can be no reason to grumble at the way in which the work has been carried out. I think I have occupied your time sufficiently, and will conclude by thanking you again for the very hearty manner in which you have honored the toast.

The chairman then called upon Mr. Baillairgé, of Quebec, for a song, and that gentleman complied, singing a French ballad in most acceptable style.

Mr. Browne: "Mr. Chairman and gentlemen, as soon as you have composed you minds sufficiently after that beautiful song, I have the honor of proposing the toast of 'The Canadian Society of Civil Engineers.' The honor of proposing that toast is one which I esteem most highly. Canadian engineers beat the world. We are proud of them, and proud to see a member here to-night, and will only be too delighted to hear from him."

The toast was enthusiastically honored.

Professor Bovey: "Mr. Chairman and gentlemen, I am the victim of a deception. I was told that when I came here I should have a good dinner, and I should hear some good speeches, and that was all I should have to do. But now it seems I have to take the place of a far better man, Mr. Kennedy, our President, and I am unable to do that, and can only thank the members for the honor they have done us. I should like to take advantage of a tale which Mr. Curry was good enough to tell me during the dinner. A guest, when called upon to speak, got up and said he supposed he had had an invitation to be present in order that he might enjoy himself (laughter); but perhaps I might be allowed to speak not for the Canadian Society of Engineers, as they can speak for themselves, but generally. I agree with Mr. Browne that the Canadian engineers have a great reputation in all parts of the world. I would say that we at McGill College are looking forward with great pleasure to the visit of the Association to our buildings to-morrow, and I think you will agree with me when I say that for architectural effect, we have buildings that are unsurpassed, even if equalled, in any part of the world. I should not have dared to say this some time ago, but I have visited all institutions of this kind in Europe and the States, and I do not hesitate to say that there is not one of them better than, if there is any equal to ours in McGill. Time will not permit me to speak of all the benefactors who have helped to this end. We have not to thank one man only. We have first to thank Mr. William Workman, who was the first to help in this particular line. We have also to thank benefactors from all parts of the world. We have received assistance from places as far away as San Francisco, and even Mexico, as well as from Germany and other parts of Europe. I would especially refer to the almost unexampled munificence of one benefactor. I think we must be proud to have a man of such unbounded generosity among us as Mr. William Macdonald, and his generosity is not more remarkable than the wonderful manner in which he has carried out the work he has set himself to do. He only insists on one thing, and that is that everything must be carried out in the best possible manner. If there is anything wrong with the buildings, the architect alone is to blame. I have often heard it said, that although we have had large donations given us, we are never satisfied, and we are not; we want a great deal of money now. I should be sorry to hear any university say that they had enough. It would mark a crisis in the history of that university, and the point where that university is on the down grade. The more money a university can get, the more good a university can do. I will speak of one department, the department of architecture. Now there ought to be a department specially devoted to architecture in the great universities of the Province of Quebec, Laval, and also our own



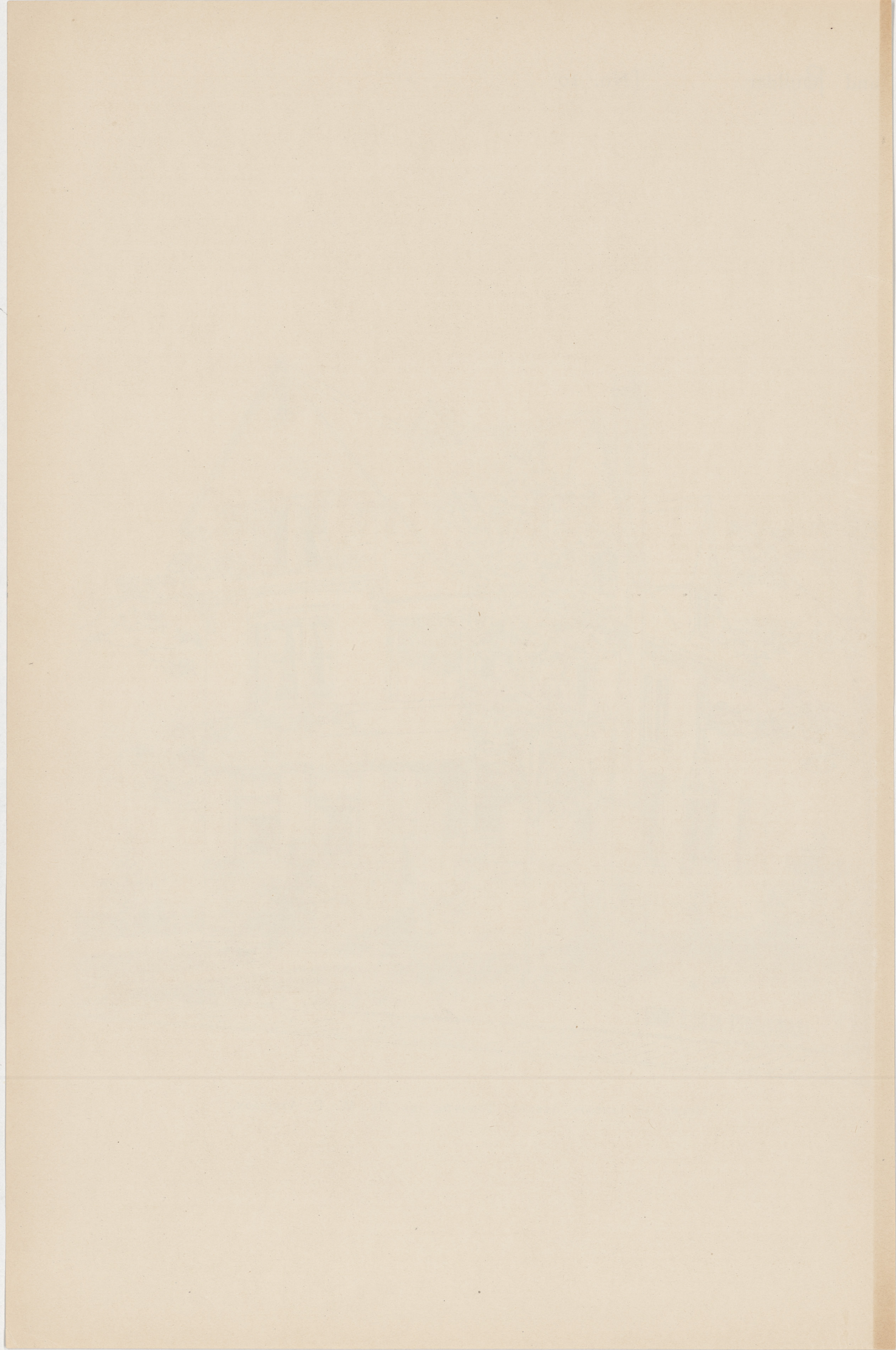
GEORGE W. WOOD
DEL.

ALEX. C. HUTCHINSON
ARCHITECT

DRAWING ROOM MANTEL.

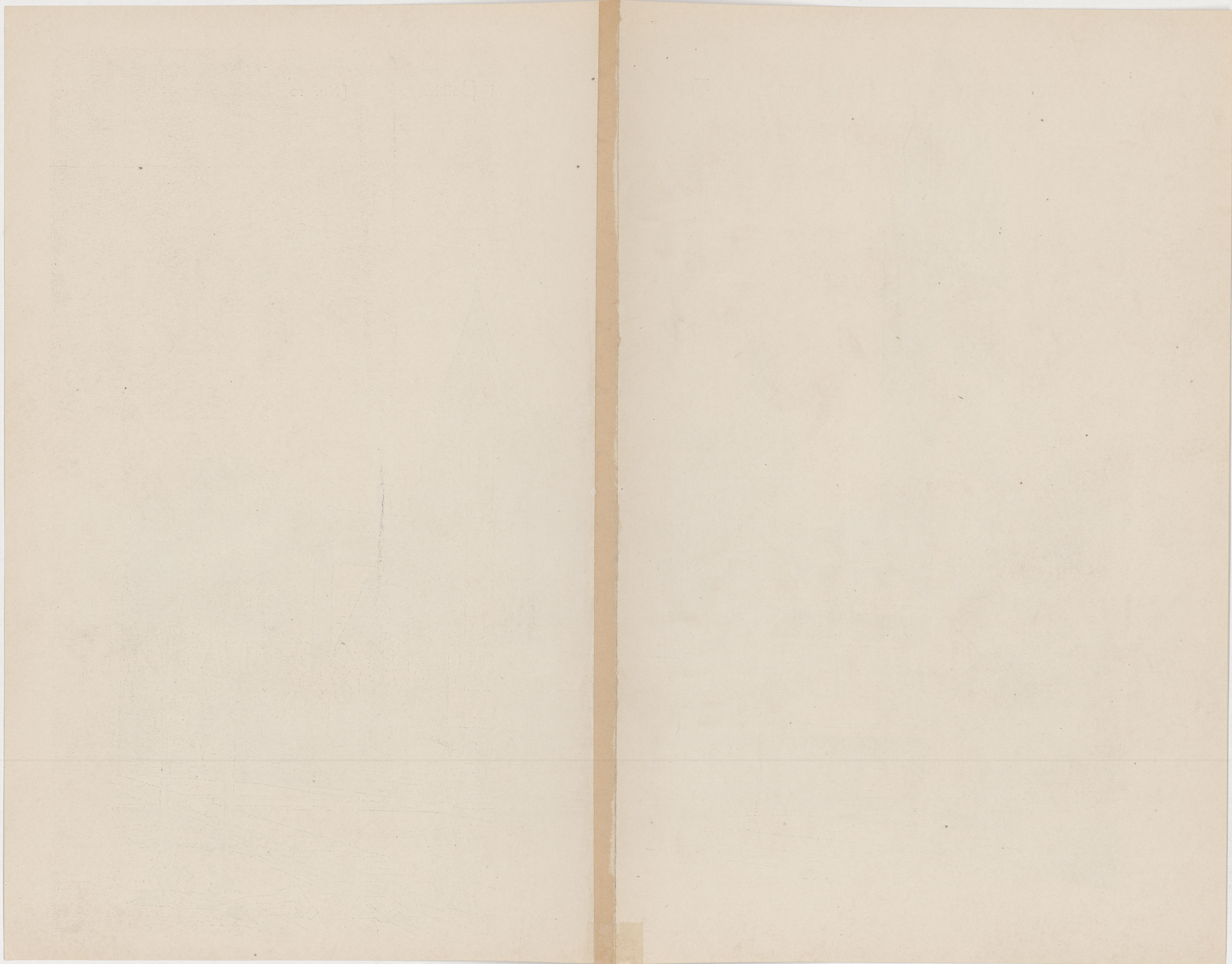


HOUSE ON JAMESON AVENUE, TORONTO, FOR MR. W. P. ATKINSON.





CHURCH OF ST. MARY MAGDALENE, MANNING AVENUE, TORONTO.





UNITED EMPIRE LOYALIST MEMORIAL CHURCH, ADOLPHUSTOWN, ONT.

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great institution; and I think that you, gentlemen, should all do your utmost to bring about this most desirable state of affairs. Many of you have rich clients and, if you have not persuaded them to spend too much already (laughter), you might persuade them to assist in founding, not merely a chair of architecture, but a department of architecture (cheers). It is of the highest importance I think in these days that students for this profession especially, should have the very best preliminary training. Young fellows preparing for the architect's profession, should have the very best training that school and college can afford. The best educated man in these days is bound to come to the front. That is the way in the United States. We have men in Montreal perfectly well able to superintend this education. The noble buildings we see on all sides, put up by our own men, are in themselves evidence that our architects are equal to anything that may be required of them. It seems to me strange that when any particular building for some special purpose is required, there seems to be a desire to go to the other side of the border, as if the work could not be done here. Sometimes—I am not quite sure—but I think that the buildings erected by foreign architects have tumbled in (laughter). I think our own men are best able to deal with our own buildings in our own climate (applause). I believe that the architectural details can be better worked out by our own men than by men who know nothing of the conditions with which they have to deal. I shall not detain you longer, but will again thank you for the honor which you have done me, an honor which I owe to my connection with McGill University. I must also thank you on the part of the Council and members of the Canadian Society of Engineers for the hearty good wishes you have expressed towards that great corporation. I believe your Association will raise the status of the profession; that is the way in our Society. We have a Dominion charter, and we are an open corporation; but an open corporation will in the long run have a greater effect than a close corporation. The moral effect of an open corporation is excellent, and in England has proved sufficiently strong to retain for its members all great works of architecture. A close corporation has of course certain advantages also. If a Dominion Association could be formed, you could exclude and keep out all undesirable characters, and retain only such men as would be known, not only in this Dominion, but also over the whole continent."

The Chairman: "Gentlemen, I will now propose a toast to the Press."

The first reply was made by Mr. Coté, who urged united effort on the part of all for the welfare of Canada.

Mr. Richard White: "Mr. President and gentlemen, I find it hard enough to say what I would like to say in English, and I cannot gratify your chairman by speaking in French. I am very pleased to be here this evening, and I am very pleased to find that you are inaugurating yourselves as a body. Judging from the experience of other professions, it is necessary that you should have an association of this kind. We find merchants, professional men, bankers and other classes having associations for their own mutual advantage, and there is no reason why your body should not also organize. I hope you will have every success in the objects for which your society was started, the general advancement of your profession, and the erection of beautiful buildings that will be an honor to Canada. I wish you every success."

Mr. C. H. Mortimer, of the CANADIAN ARCHITECT AND BUILDER, also responded.

Mr. Gendron was called upon for a song, but having a slight cold, delivered a speech instead. He said: "We have applied for a charter, and we have got it; but it was first mutilated. We want a tariff, and a tariff which shall provide a just recompense for an architect's services, the same as in the legal and other professions. We have now in the house a tariff which we consider fair, and which we expect to see passed. I must say something for the Mayor of Montreal. He is the friend of the architects. He rendered justice to us at Quebec."

The Mayor: "Gentlemen, I am going to propose a toast that I know every one here will drink with the warmest enthusiasm imaginable. I am sure that every gentleman who is here will join with me in drinking the health of a gentleman who has so ably presided at your board, a gentleman who has been elected to fill the high and honorable position of President of your Association. I have known Mr. Roy for many a day. We have not been on the same side of politics, but we have always been friends. Mr. Roy is, like myself, a Montreal boy; he has worked himself up to the honorable position which he now holds. In choosing for your President men like Mr. Roy, who has worked honestly to do credit to himself and credit to his name as a Canadian, you do honor to yourselves." (Cheers.)

The toast was honored enthusiastically.

The President: "Gentlemen, the noble words which the Mayor has just spoken touch me most deeply. I do not say they are true, for I have learned the complimentary facts he has stated to-night for the first time. If I am this night President of the Association of Architects of the Province of Quebec, it is not by reason of having solicited the honour. I was greatly surprised myself when, after having threatened the Association to resign several times, I found that I had been elected President. But, in this world we are not made for ourselves alone. I said to myself, 'I am the victim of something or somebody,'

and when I found it was happiness to work for others, I fell into my role. Gentlemen, I thank you for the honor you have done me, and know that all I can do to make the Association a success, and all that we can do, will be cheerfully done. I have great confidence that we will attain our objects. There are ambitious men in our Association, but the greatest number are those who love the good of others. When the Association is recognized by the Legislature, the proprietors and capitalists will recognize them. The advantage of our Association is, that if all the details are well understood, the public will only employ architects recognized by the Association. It is their duty; it is their interest. When our profession shall be held in proper respect by the public, you will see noble and good monuments erected. That is what works for the good of the public. We are all certain to live. The architect lives in every country; but when he is known, he lives better, for he has less work to do and more time to study his lines. I thank you cordially, and I shall do all in my power to cause the Association to increase and prosper in every way. I think that in this year we will try and show some lines of progress, and we will try to act so that all the architects will join with us to second us in our efforts."

Mr. Browne: "Mr. Chairman, I have the honor to propose the health of a man respected by all, who has held high positions amongst us, who has done a great deal for the society; that is, our retiring President, Mr. Berliquet" (Cheers.)

The toast was cordially honored.

Mr. Berliquet: "Mr. President and gentlemen—In replying to the very flattering compliment which you have just paid me, I feel a certain sense of personal responsibility. The subject of Canadian architecture has already been treated at great length, and the progress of our Association has been the subject of much remark. I have great satisfaction, to which feeling is added a sentiment of vanity (fierté), or, better still, of pride (orgueil). Our association has already given evidences of virility and stability (applause). But yesterday we were scattered over the whole surface of the Province of Quebec, and we did not know each other. To-day we are united into a corporation, united by a community of interest, for the purpose of advancing the profession, and obtaining for it the recognition which it merits among the ranks of the liberal professions. The work we have undertaken is a work of civilization and patriotism. Particularly will we labor to diffuse knowledge that will cause the progress of the exact sciences. I hope that the diploma of the Association will one day be highly prized. There remains for me one more duty to fulfil, namely, to thank you personally for calling me to the Presidency of your Association. I hope you will continue to second the efforts of your promoters, and work in a fraternal spirit. Our efforts to become a corporation are meeting with their recompense. It is that spirit of devotion which has made the stability and fortunes of all institutions" (applause.)

Mr. Dunlop: "Mr. President, I beg to propose a toast to 'The Quebec members of this Association.' I think that they are deserving of a great deal of thanks for coming here, and the only trouble is, we do not ask them to come here often enough. I know, for my part, that when we go to Quebec we are treated right royally, and we are glad to have an occasional opportunity of returning the compliment."

The toast was drunk heartily.

Mr. Baillairgé: "Mr. President and gentlemen, I thank you for the way in which you have honored the toast. I am sorry we are unable to be here in greater numbers, but the members here will express their appreciation of the way they have been treated. I am not accustomed to addressing audiences of this kind, but will call upon Mr. Peachy, who has been a city councillor, and is therefore an experienced orator."

Mr. Peachy: "Mr. Chairman and gentlemen—My honorable friend has paid me a compliment which I do not deserve. In the city of Quebec I worked for the city and I did my best; but I never shone as an orator, and after the elegant speeches I have heard this evening, I am very diffident about addressing you. I am charmed at having come here, not only with the number of the members, but with the friendly spirits of which the society is composed. In the city of Montreal we observe that architecture has made immense strides; we see the architects of Montreal occupying the highest positions; the buildings of Montreal are equal to any in the United States. We, in Quebec, have not the same resources that Montreal has; but, all the same, we shall follow in the right track, and do all we can for the instruction and education of our young architects."

The last toast, "The Retiring Officers," was responded to by Mr. Doran in the following terms:

"Mr. Chairman and gentlemen—I may take it for granted that in toasting the retiring officers, you desire thereby to express your approval of the greater number of their actions, and in the efforts they put forth for the advancement of an Association that was only in its infancy. It has, however, now attained a certain amount of growth, and the problem is, how to increase that growth and how to nurse the plant so as to make it a plant worthy of the soil. It is true that we have not accomplished everything we desired, particularly with reference to the act of incorporation sought for from the Legislature. We received something, but not all we asked for. The Quebec Legislature followed the bad example of the Ontario Legislature by mutilating the act by giving powers to 'registered architects,'

rather than to 'architects,' simply. However, for my part, I am of opinion that, having accepted the Acts, such as they were, the profession made a great mistake in not assuming the name required. I think that until the members of both Associations look seriously into the question, and assume the title given them, they will not, nor cannot have all the benefits, because, as it was pointed out by the President, up to and until the formation of this society, anyone could arrogate to himself the title of architect, and any one can still, and how are the public to distinguish? I think for my part that architects are foolish in not availing themselves of the protection, meagre as it is, afforded them by the act. In conclusion, gentlemen, allow me to thank you for the cordial way in which you have drunk the toast."

Some more songs and speeches brought a pleasant and profitable evening to a close.

SECOND DAY.

The members assembled at the Association rooms at 10 o'clock on Friday morning, and entering carriages in waiting, were driven to points of interest in the city. En route to the Royal Victoria Hospital, the attention of the visitors was directed to some of the old landmarks, such as the building which served as the residence of the first Governor of Lower Canada, now doing humble duty as a coach-house; the old Legislative buildings, now a hotel; the site of the old city wall, which still bears the appropriate name of "Fortification Lane"; Ontario street, formerly traversed by a creek, on the frozen surface of which when in youth some of the leading architects of the present day were accustomed to practice on the "ringing steel." "It is such features of reminiscence as these which go to make a city interesting," exclaimed one of the visitors, a remark in which everybody could coincide.

At the Royal Victoria Hospital the party were taken in charge by Mr. Rhind, under whose supervision the large buildings have been erected, and by whom the points of most interest in their construction were shown and explained. Those of our readers who examined the illustration of these buildings which we published a year or more ago, will remember that the site is irregular and uneven, yet this fact, which would ordinarily be regarded as a disadvantage, has by the skill of the designer actually been turned to advantage, whereby the bottom storey of one wing is on a level with the top storey of the other. The buildings have been erected of Montreal stone, and present an enduring appearance. The planning, being the work of Messrs. Saxon Snell & Son, the noted hospital architects, of London, was the subject of much interest. The buildings, which will cost about half a million dollars, are nearing completion, and will it is expected be ready for occupation early next year.

From the Royal Victoria Hospital the party were taken to the new Technological Building in connection with McGill University, of which Mr. A. T. Taylor is the architect. It is a most substantial structure, and its perfect adaptability to its purpose, evidences the painstaking thought bestowed upon it by the designer. The various parts of the building are isolated from one another by fire-proof doors. Professors Bovey and Workman received the visitors in the most cordial manner, and personally conducted them through the building, explaining as fully as time would allow the work which was being done, and the apparatus employed. After a peep into the draughting rooms, pattern rooms, machine shop and blacksmith shop, each fitted with the appliances necessary for imparting instruction of a practical character to the students, they were asked to behold what Prof. Bovey declared to be one of the best equipped testing laboratories in the world.

This laboratory contains two testing machines, representing the most perfect English and American patterns, each with a capacity of 100,000 pounds. These machines are operated by means of a small electric motor. They are capable of determining both the tensile and crushing strength of materials. A bar of iron, one inch in diameter, was subjected to a tensile test in the presence of the visitors, and after stretching three quarters of an inch, finally broke under a strain of 40,000 pounds. The laboratory also contains a chemical balance capable of weighing 125 pounds or the fraction of a grain, a *fac simile* to a small scale of the Montreal water works, by which the head of water necessary to supply a given population may be determined; apparatus for measuring the volume and rate of flow of water in a running stream, etc.

Here, as stated by Prof. Bovey, may also be seen the only standard cement testing department in Canada. The visitors were shown an automatically working testing machine. Cement briquettes are placed in a copper vessel containing water and subjected to a temperature of 100 degrees. If, after 24 hours, the briquettes blow, they are given a second trial. If, after the second trial, the briquettes blow they should be discarded. As in cement testing trouble often results from variation of personal manipulation, arrangements are being made in this department by which such manipulation will be done automatically.

Other features of interest were the electrical department, which contains a 250 h. p. dynamo driven by a sixty h. p. engine. There is not a belt in the place, the dynamo being driven straight on end. There are two engines each 500 h. p., and the space occupied by each engine is only 5x9 feet. The bottoms of the engine beds are hollowed out, which has the effect of preventing rocking.

One of the most interesting and valuable features of the institution is the library, which contains 6,000 volumes of scientific books, being one of the most complete libraries of its kind in the world.

At the top of the building, enclosed in glass, is a museum of mechanical models, which for completeness is said to be unequalled anywhere in the world. These models are the work of a celebrated German maker named Releaux, and were many of them made expressly for this institution. They illustrate almost every conceivable mechanical movement, and will be of great service, not only to the students of the school, but also to manufacturers and inventors. They are valued commercially at \$8,000. Between the School of Technology and the new Physics building, which was next visited, there is a vacant space on which Prof. Bovey expressed the hope that another building would shortly be erected. When asked if his expectation was that this new building would be devoted to architectural education, he replied in the affirmative. He pointed out that even at present accommodation exists in the Technological building for this purpose, and the hope was expressed that the architects might be able to induce some of their wealthy clients to make the endowment necessary for the equipment of a Department of Architecture.

The Physics building, which is as yet incomplete, seems likely to be as perfect in its arrangement and appointments as could be desired. There is also in course of erection a new library building with a capacity of 150,000 books. The college library at present numbers 30,000 volumes. The stack-room is to be made thoroughly fireproof. In addition to the ordinary reading-rooms, there will be special study rooms in the basement.

Taking farewell of the college grounds and buildings, the party paid a visit to the new High School building, of which Mr. Hutchison is the architect. The front of the building is of pressed brick, and presents a very satisfactory appearance, while the planning of the interior appears to have been accomplished in an equally successful manner. The departments for the male and female pupils are at opposite ends of the building, with wide corridors between. Access is had to the lecture rooms from both departments. There are spacious play rooms in the basement, a library, a large gymnasium, and an assembly hall with a seating capacity of 1,200. The lighting facilities throughout the building are excellent.

From the High School the party returned to the Association rooms on St. James street.

It was moved by J. J. Browne, seconded by F. X. Berliquet, that the Association tender its thanks to Principal Sir William Dawson for giving permission to the members to visit the new Science Buildings of McGill University, and also to the Dean and Professors of the Faculty of Science for their kindness in showing the members of the Association through the buildings.

It was moved by J. F. Peachy, seconded by J. Venne, that the thanks of the Association be tendered Mr. J. R. Rhind for his kindness in showing the members through the Victoria Hospital.

It was moved by J. Nelson, seconded by C. Baillairgé, that the thanks of the Association be tendered Rev. Elson I. Rexford, Rector of the Montreal High School, for his kindness in permitting the members to visit the new school and showing them through it.

The members then took leave of each other, and an occasion of much interest was brought to a close.

THE LATE W. H. HODSON.

Mr. W. H. Hodson, one of Montreal's old time architects, has passed over to the majority, an acute attack of pneumonia having ended his useful career. He commenced the study of architecture with one of the best firms in Manchester, England. Completing his studies there, he emigrated to this country some



THE LATE W. H. HODSON.

time in the fifties, practicing with great success in New York and Brooklyn. Coming to Canada in 1857 or 1860, he located in Montreal, and probably first distinguished himself on the building occupying the north east corner of Bleury and Craig streets, amongst others carrying out the works successfully of Messrs. Owen McGarry's and D. Ford's residences, St. Ann's church and St. Finnis, Alexandria. Mr. Hodson was a man of sterling qualities, his honesty being almost proverbial, his energy integrity lasting to the end.

THE TORONTO TECHNICAL SCHOOL.

Following is an abstract of the address delivered by Mr. John A. Duff, Principal of the Toronto Technical School at the opening of the second term on Oct. 31d.:-

It has been announced that I am to speak to-night on "The Benefit of Technical Knowledge in Mechanical and Industrial Pursuits." It would probably be inferred that I would endeavor to enumerate the advantages and advocate the claims of Technical Education in general, but I do not think that any one will be disappointed at hearing that such is not my intention, for I feel sure that everyone will be more interested in hearing what facilities for such education are provided by the Toronto Technical School, and by explaining the scope and bearing of the subjects taught I think I can more effectively than in any other way make clear to you the advantages to be derived therefrom.

The history of the Toronto Technical School is brief. In December of last year the City Council passed a by-law, appointing a Board of Management and giving them an appropriation of \$6,000 and the free use of St. Lawrence Hall. The Board at once began the work of organization; teachers were appointed, and the courses of study decided upon, and St. Lawrence Hall having been found unsuitable, this building was secured and the necessary alterations made with such expedition, that by the first of February the work of the session was well commenced. The attendance from the first was large, and was well maintained throughout the term, and very satisfactory progress was made.

Such has been the past. There is every reason to hope that the coming year will be still more successful and that the Toronto Technical School will rapidly become a great power for the dissemination of scientific knowledge and habits of correct thought. With additional teaching power we have been able to make the course of study more comprehensive. Trigonometry will be taught twice a week instead of once, which was all the time we were able to devote to it last year, and, if necessary, the classes in Arithmetic and Mensuration will be sub-divided. Arrangements have been made for three classes per week in Chemistry and Physics, which will enable us to provide a tolerably complete course on electricity—that mysterious power which seems destined to usher in a new era of civilization. There is thus provided for the current year the following distinct courses of study: Mathematics, including Arithmetic, Mensuration, Algebra, Euclid, Trigonometry; Practical Geometry, Descriptive Geometry, Mechanical and Architectural Drawing; Mechanics, including Statics, Kinematics and Dynamics; Chemistry and Physics, including Hydrostatics, Heat, Sound, Light and Electricity.

Each student is allowed to select his own studies subject only to the requirements of the time table. With only ten teaching hours in the week it is impossible to make provision for all the classes without having two different subjects occur at the same time, and thus to some extent the freedom of choice in the selection of studies is curtailed. The time table has, however, been carefully arranged, so that the least possible inconvenience will be felt from this source. For example, if a student has so far forgotten his Arithmetic that it would be necessary for him to take lessons in that subject, he would not be able, until he has become familiar with Arithmetical operations, to derive much benefit from the lessons in Mechanics. We have therefore put Arithmetic and Mechanics down for the same hour, and the students who find it necessary to review their Arithmetic, and who wish to study Mechanics, will find it not a hardship but very much to their advantage, to take Arithmetic during the present session and defer the Mechanics for another year. As the success of the student and therefore of the school depends largely on the proper selection of the course of study, let me briefly describe the different subjects taught, and incidentally mention some of the advantages derived from each.

Let us begin with Mathematics, the interpreter and herald of scientific knowledge, and without which little real progress can be made. Mathematics is one of the most potent instruments of scientific investigation, besides being the only foundation upon which exact scientific knowledge can be built. In Science and Engineering, theories are of little value unless they are exact and definite, and we cannot have this exactness without Mathematics. A knowledge of Mathematics is not necessary in order to understand the general laws of nature, but it is necessary in order to state those laws with exactness or make any practical application of them. Anyone can understand that water will flow through pipes, but no one can calculate the quantity which will flow through a given pipe in a given time without a knowledge of Mathematics. I do not mean to say that Mathematics must be pursued to its highest developments, but it is necessary to have at least a good working knowledge of Arithmetic, Algebra and Geometry.

The course on Arithmetic—the corner stone of Mathematics—will comprise instruction in numeration and notation, the operations of addition, subtraction, multiplication and division, the use of fractions and decimals, ratio and proportion, the method of extracting square root and the theory of logarithms—in short a complete course in Pure Arithmetic, including all the arithmetical operations which are used in the other branches of Mathematics and Science, but excluding Commercial Arithmetic, which is the application of the foregoing rules to the computation of interest, discount, stocks, annuities, &c., and which finds its proper place in the curriculum of a Business College.

Along with Arithmetic are taught the rules of Mensuration, by means of which the areas of surfaces and the volumes of solids may be calculated and compared. A knowledge of these rules may be required by any man at any time or place.

In Algebra the work will be the same as that which is ordinarily taught in the High Schools of Ontario, which is all that is usually required in pure or applied science. I will not occupy your time with a more particular enumeration, but I wish to impress upon all intending students the vital importance of Algebra in chemistry and physics. In these sciences formulae occur which can only be properly expressed by algebraic symbols, and the only practical method of solving problems or determining an unknown quantity, is by means of algebraic equations. But if Algebra is of so great importance in Chemistry and Physics, it is absolutely indispensable to the proper study of Natural Philosophy or Mechanics. Very few calculations involving force or motion can be made without its aid, and without Algebra a knowledge of Mechanics must always prove to be incomplete and unproductive. What has been said of Algebra is true to almost as great a degree of Trigonometry and Euclid's elements of Geometry. Euclid has the further advantage of being one of the most perfect systems of logic that has ever been constructed, and no one can master Euclid without becoming a logician.

Let me here remark that the aim of higher education ought not to be so much to fill the student with dry facts, as to teach him how to use what knowledge he already possesses—in other words to teach him how to think properly and to act accordingly. And one of the greatest works that a Technical School can do is to teach mechanics the art of thinking. To do this there is no study so efficacious as Mathematics, for there is no other branch of knowledge so exact and definite, and there is no other in which the reason alone is employed.

In Chemistry, it is proposed to teach the mode of occurrence, the nature, and methods of preparation of the different elements and compounds which are of importance in everyday life, special attention being given to those substances and processes which are of technical value, such as electrolysis, coal, and the manufacture of coal gas, iron and steel, mortars and cements.

Lying in the border land between Chemistry and Physics, is the study of the constitution and properties of matter:—a few lectures will be devoted to this very interesting subject.

Under Hydrostatics will be taught the general character and properties of liquids, and the theory of the common hydrostatic and hydraulic instruments, such as the hydrostatic balance, hydraulic press, spirit level, hydrometers, electrometers, etc. Along with hydrostatics, though scarcely belonging to it, come the physical properties of gases and the atmosphere, the theory of the barometers, pumps, balloons and siphons.

The course on Heat will embrace the nature, sources, transmission and general effects of heat, the theory and construction of thermometers, the determination of the melting and boiling points, freezing mixtures, distillation and evaporation, and the theory of steam engines.

Lectures will be given on the elementary theory of Sound and Light in, which the theory and construction of optical and musical instruments will be described.

Electricity will be taught in two divisions. The relation of Chemistry to electricity, and the theory and construction of electric batteries, will be described in connection with the course on Chemistry. In connection with Physics, there will be a course on magnetism and current electricity, the theory and construction of the dynamo, telephone and telegraph, and the applications of electricity in daily life.

In Chemistry and Physics the lectures will be illustrated by experiment as far as our apparatus will permit. We hope that very soon, though perhaps not during the present year, there will be a laboratory in connection with the school, in which practical work in Chemistry and Physics may be done by advanced students. The advantages to be derived therefrom must be apparent to all, and let us therefore hope that it will soon be an accomplished fact. There will be a course on Practical Geometry, which is intended to give facility in the use of drawing instruments and the construction of geometrical figures. It will be found very useful as an introduction to the course on Descriptive Geometry or the theory of projection. That on Descriptive Geometry will comprise the representation of objects by means of a plan and elevation, and problems leading up to and solved thereby, such as the determination of the form of the intersection of two cylinders or cylinder and a cone, together with instruction in oblique and perspective projection. This course, which involves the theory of drafting, is of great utility not only to those who are trying to perfect themselves as mechanical or architectural draftsmen, but to sheet metal workers and any whose occupation requires them to have some knowledge of working drawings, as pattern makers, boiler makers, machinists, etc. In connection with the Descriptive Geometry, practical instruction will be given in the drafting room in instrumental drawing, lettering, etc., for which purpose copies and models of machine and building construction will be available. This instruction will be given to the students individually and for this purpose the drafting room will be open, and an instructor will be present during every teaching hour of the school. A student who takes this course of practical work in the drafting room should be able by the end of the year to read a drawing without any difficulty, and also to make a fairly good original drawing, and at the end of two years he should be a fairly good draftsman.

The course on Mechanics will embrace the theory of vectors, the representation, measurements and laws of forces and motions, the theory of equilibrium, theory of the lever, pulley, and other simple mechanical powers, the calculation of stresses, theory of the simple beam, the transmission of force and motion, friction, work, energy, power, the efficiency of machines and the elements of machine design. I hope that this brief outline of the courses of instruction will enable intending students to choose wisely the subjects which they most require. But should there be any who are still unable to make a choice, the teachers will be glad to give whatever further information may be required. Most students will find that they will be unable to pursue more than two or three courses of study during the year. I would advise those who thus find it necessary to defer some of their studies, to take their Mathematics first, for the reason which I have already given, that a knowledge of Mathematics is essential to a proper study of the other subjects. From what I have said or from a reference to the prospectus it might be inferred that we expected to complete all our courses of study in one year, but such is not the case. In Algebra, Euclid, Descriptive Geometry, and perhaps some of the other subjects, two years will be required to complete the course, and it is expected that the advanced classes in these subjects will be formed next October. And, without interfering with the perfect freedom of choice now enjoyed by students wishing to pursue a special line of study, it is hoped that we will then be able to announce the programme for a regular course embracing two or three years. The experience of the past winter has convinced me that in Toronto the demand for technical education is urgent, but the citizens may rest assured that on the part of the Board of Management or the teaching staff of the Technical School no effort will be wanting to supply that demand.

LEGAL DECISIONS.

In the case of Lane vs. The Dungannon Agricultural Driving Park Associations, recently decided by the Court of Queen's Bench, Toronto, the contractor for the erection of a building for the defendants during its progress gave to various persons orders upon the defendants for sums due them by him, in the following form: "Dungannon, Sept. 12, 1890. To the directors of the Dungannon Driving Park Associations. Please pay to D. M. the sum of \$—, and oblige (signed) T. F. H., contractor." The court held that these orders were not in themselves good equitable assignments of portions of the fund in the hands of the defendants. The evidence, however, showed that there was only one fund out of which the directors could be expected to pay the orders; that the nature of that fund and its origin were well known to all the parties, that when the contractor promised the persons with whom he dealt orders upon the directors, he meant to give, and these persons expected to get orders which were to be paid out of the contract price, and that the directors understood the orders as intended to deal with portions of the contract price, and to be payable only out of that particular fund. It was held that the court should look to the real intention of all the parties to the transaction, and give effect to it by declaring that the contractor did make an equitable assignment to each of the order holders of a portion of the fund.

TORONTO BUILDERS' EXCHANGE.

Some time ago we published particulars of the organization and growth of the Toronto Builders' Exchange; and on several occasions since have noted the steady development of the organization.

So great has been the progress of this body, that some time ago it became apparent that more commodious rooms would be required for its accommodation. Two or three weeks ago the Exchange took possession of new premises at No. 8 Victoria st. These premises comprise a large Board Room, suitable offices for the Secretary, Committee rooms, etc. In short, they afford every needed facility for the efficient transaction of the business of the Exchange.

On Thursday evening last the new Exchange rooms were formally opened by a banquet and social entertainment, at which upwards of 150 members of the Exchange and invited guests were present. Tables loaded with tempting viands stood waiting their arrival. After due attention had been paid to these, the balance of the evening was devoted to speeches, recitations music and social chat. The President of the Exchange, Mr. W. J. Hill, in a happy manner presided; the vice chairs were occupied by Mr. George Moir and Mr. George Oakley. The musical accompaniments were played by Mr. W. H. Hewlett.

The list of those present is as follows:

Invited guests—Messrs. H. B. Gordon, Grant Helliwell, Robt. Ogilvie, Edmund Burke, S. G. Curry, Frank Wickson, J. Reggin, J. W. Siddall, James Smith, Prof. Wright, (School of Practical Science), J. Maguire, M. Guy, R. G. Kirby, Henry Simpson, R. J. Edwards, H. J. Webster, Chas. Walton, C. E. Bavington, S. H. Townsend, Henry Langley, Price, W. R. Gregg, Harry M. Blight, Harry Rich, W. H. Hewlett, John Knox, J. A. Pearson, Thomas Westlake, Thos. Young and D. Phillips representing the CANADIAN ARCHITECT AND BUILDER.

Members—Messrs. John Aldridge, Edward B. Axworthy, Benj. Brick, Jeremiah Bedford, John Bedford, Fred Bedford, Henry Bedford, Fred. Bayliss, James McCurdy, J. J. Blain, J. Bulley, John Brodigan, William Best, James Crang, Jethro Crang, John Vick, James Claxton, Richard Chalkley, John E. Curtis, William H. Rowe, John Carlyle, James Pears, Richard Elliott, L. B. McKenny, Capt. Neelon, M. A. Piggott, A. T. Fox, Jesse Ashbridge, Edward Gearing, John E. Goddard, John M. Gander, J. Lister Nicholls, Alfred Gardner, G. W. Gore, W. J. Hill, George Gall, Robert Harrison, W. F. Lewis, T. Hoidge, William Duncan, R. Hewitt, John Hanrahan, William Isaac, James Isaac, Daniel Livingstone, George Wright, Frank B. Lockwood, Henry Martin, William Maguire, C. F. Mitchell, John McMurren, George Moir, F. G. Nicholson, Archibald Orr, Robert Orr, George Orr, George Oakley, Fred Holmes, Scott (Ontario Lime Association), Isaac Price, John Price, William Park, James Priestley, Henry Phillips, Thomas Robinson, Robert Robertson, Thomas W. Self, Robert Snarr, William Simpson, Robert Simpson, Joseph Price, Thos. Sawdon, W. R. Simmons, Andrew Thomson, James B. Thomson, David Williams, James A. Wickett, John Wickett, William N. Watson, J. Watson, Geo. W. Walker, John B. Barnard, C. C. Witchall, Robert Whillans, William Whillans, William Woods, Ewart Farquhar, Samuel Young, and John L. Phillips, the Secretary.

The following gentlemen had charge of the entertainment:

Messrs. W. J. Hill, Geo. Moir, George Oakley, David Williams, John Aldridge, Benjamin Brick, William Park, James Crang, M. Murphy, J. L. Nichols, William Pears, Henry Martin, W. J. Burroughs, John M. Gander, Edward Gearing, Frank Powell, and to their well directed efforts is principally due the success of the occasion.

The toast of "The Queen," was proposed by the President, and responded to by singing "God Save the Queen."

The company were then favored with a song from Harry M. Blight, entitled "Polly," and on being encored Mr. Blight sang "Heart in Hand."

The toast of "The Toronto Architectural Guild" was then proposed by the President, accompanied with the names of Mr. Curry, Mr. Langley, Mr. Gordon and Mr. Smith.

In responding to the toast, Mr. Curry spoke as follows: "On behalf of the Architectural Guild I thank you most heartily for this toast, and for the manner in which you have just voted us 'jolly good fellows.' I think those who are acquainted with us architects will agree with me when I say we are 'all jolly good fellows.' I am afraid though, at times some of the members of this association are inclined to think we are not. Of course, there may be a little friction sometimes between us; but I think that on the whole we understand each other pretty well. Some architects in giving out contracts do so on the basis of getting too much value for the money spent; it is a question often of getting too little money for the work done. I think the builders are somewhat to blame for this state of affairs themselves, as a great many of the builders tender for work for much less than its proper value. If it was possible for the builders to make some arrangement among themselves, whereby they could get a proper amount of money for a proper amount of work done, it would be more satisfactory all round than trying to cut each other's throats. Now, there are architects and there are builders who are desirous of getting work, no matter at what cost—all they want is the work, to be able to say they have the work—who will tell you how they have been able to erect a certain building at an amount considerably less than some

other of the builders can do. There is a competition among the architects to do business on the cheap plan; and the result is most unsatisfactory alike to the architects and the builders. As it is growing late in the evening and so much to follow, I will close by thanking you for your kind attention, and for the hearty way you have come together this evening and laid aside all grievances.

Mr. Langley said: I am very glad to have an invitation to meet so many of you this evening—so many faces I have been used to seeing for the past twenty-eight years. I will not endeavor to make a speech, as I am not a speech-maker. I heartily endorse everything Mr. Curry has said, especially as to the rates at which contracts have been taken.

Mr. Smith said: I thank the Builders' Association for the great pleasure of my being here this evening. I feel like a stranger in the city of Toronto when I see so many builders here. There were very few when I came to the city—very few of the fine buildings we now have in the city of Toronto were to be seen then. To the builders of Toronto we owe more, I think, than to any other class of men for the proud position our city occupies to day. Any stranger coming into the city of Toronto, and especially American and English visitors say, Toronto takes second place to none. I came to Toronto in 1857, and I don't think many of you were in existence then (a voice—we were all built since then). I recollect the first year I was in business I only made \$3.00. I only got \$3.00, remember \$3.00, for putting up a house, and then had to pay the taxes—don't talk about hard times any more. Here we have in this city nearly 200,000 inhabitants. I have travelled over a great part of the continent, and I can say our great buildings are equal in design to any of the great buildings on the continent. I suppose a good many of you are acquainted with me and a good many of you are not. I should like to shake hands with you all before I leave.

Mr. Gordon replied in the following words: As I look around and see the large number of intelligent faces here this evening, who are making their mark and leaving their mark in the way, as Mr. Smith has already put it, of the great buildings which are springing up on every side, I remember that you are the men who are making these lasting memories in our great city. We may look forward to good times when we have men of your calibre amongst us. The exchange of ideas, the exchange of thought and the stimulus of your meetings will have a beneficial effect upon business in this city in years to come. The very idea of a Builders' Exchange suggests a broad and comprehensive platform. While sitting here listening to the eloquence of the gentleman who preceded me, I was struck with the hospitality you tender to your guests on the opening of your new rooms; you have made an exchange of hospitality this evening, and if your hospitality is of the kind we are partaking of this evening, certainly you are adepts in the hospitality line, and I don't think you require any advancement in this line. You have certainly shown us all how to extend courtesy. Now as I look around and see the intelligent faces of men who have grown grey in their various trades, and see how they have prospered, I think it must be a good idea this building Exchange, where all can meet together and exchange ideas; I trust though that in this exchange of your ideas you are careful to be very lenient with one another. I hope in your exchange of ideas you will exercise moderation and throw about your ideas the cloak of charity. As to the method of tendering and this vexed question as to the price the tenders are put in at, and the difficulty there is of getting return for work done, I think that some satisfactory arrangement could be arrived at between yourselves which would do away with these vexatious questions. It has been done in times gone by, and if it was possible for the intelligent men of that day surely it is possible for you in a very short time to raise your tenders together, and then we will not have this everlasting cut in the prices to which we have been subject in the past. It would be a great relief to us all if means could be devised whereby a fair price could be got for work which is tendered on. The only way to accomplish this, is to have some properly constituted board to regulate prices, which would have the endorsement of the architects,—men who would have the endorsement of the Architects' Association, representatives from the various trades; men whose standing and position should be such that they would not be subject to reproach, men on whom the architects could rely, and furnishing, as it would, a comprehensive platform. We would then get better prices for our work, as hinted by Mr. Langley. I hope that the committee which have the exchange under their control, will speedily take means to accomplish this end.

Prof. Wright, of the School of Practical Science, spoke briefly in effect as follows: I am greatly pleased at seeing you all this evening. All I wish to say is, I hope that these new rooms and the formation of the Exchange will be beneficial both to the Builders' and the Architects' Associations and to the architects of this city at large. I am surprised this evening to see such a large gathering of builders here. I had expected to see about two dozen, instead there are over one hundred present.

Harry Rich then sang, "Boys of the Old, Old School," which pleased the boys of the old old school so well that Mr. Rich was forced to respond to an encore, in replying to which he favored them with "Polly."

The toast of "The Builders' Exchange" was then proposed by Mr. Curry, who made the following remarks: "This Ex-

change will be able to show what the builders can do in the way of benefitting themselves, and also the architects, as our interests are practically one. It is a difficult thing to say just what could be done to promote the best of feeling between the architects and the builders, but something should be done to place things in a better position than they now are. It cannot be considered satisfactory when builders are competing to obtain work at rates which will simply give them day's wages at the best; that is the condition of things at the present time. At the same time it is a very difficult thing to say what would be satisfactory to all parties. Certain of the builders propose certain remedies; nothing could be accomplished without the builders being unanimous on this question. You must learn to have confidence one in another. If you can cultivate confidence, it will place you on the road to secure the needed remedies. I think the architects will do all in their power to assist you. Of course the architects do not care to interfere in matters not considered their own. Sometimes the trade unions undertake to dictate to the architects what they should do. I am not at all opposed to trade unions myself in any sense. I don't believe there are any of us who are desirous of having our work done for less than will maintain a man in comfort. It would be very unjust to get work done at a price which would insure but a bare existence. We can surely make more than a mere existence. Now, I hope this Exchange will result in the builders coming together and talking the matter over, and having greater confidence in each other, and arrange matters so that in future this unreasonable competition will not go on, although it seems to be the principle of the present day that everything must be cut down, to the detriment of the great majority, while the few reap the benefit. There are many points to be considered as between the architects and builders. In this matter of tendering, say a builder puts in a tender, and his tender is the lowest; an architect has to consider all tenders thoroughly, and he will accept the tender that is most judicious in the interest of the proprietor and the contractors. Then the builder who has put in the lowest tender thinks he is being played upon, and gets indignant. Now, it comes in as between the architects and builders very often that the contractors are trying to get the work done with as little work as possible, and the architect with as much as possible. I have been told that it was my duty to get all I could out of the contractors. The contractor, I think, should tender to do the work at such a figure as will allow him to perform the work to the thorough satisfaction of the architect. I think one of the great faults of the present day is that specifications are more or less useless. They are drawn up by the architect in rigmorole style. There has got to be a specification of some sort or other. An architect is not infallible; he cannot know everything. It is this question of inferior specifications which causes a great deal of dissatisfaction. If the architect knew just what class of work a proprietor wanted or about what he wanted to expend, there would be less friction in these matters. Now, I think it would be in the interests of the members of this Exchange to try if some means could not be adopted whereby a reasonable profit could be got for work done. If you find an architect is unreasonable in the manner of work to be done, you need not take work from his office. I think it would be well to drop out of that architect's office; that is the only way to put things straight. If the architect is unreasonable and unjust, why do not go near him. At the present time it is a very difficult thing to try and raise prices; everyone wants work; they must have work often, and they attempt to get it at a very low figure. Something should be done to improve the present condition. I think combines useless.

Mr. W. J. Hill, the President of the Exchange replied as follows: "On behalf of the Exchange I have to thank you for the hearty manner in which you have drank the toast of the Builders' Exchange. Away back in the early sixties, the first builders' association was organized in the city of Toronto. From that time until February last the organization assumed various shapes. After considerable talk last winter, certain members prominent in connection with the builders' section decided to write to the United States for information necessary to the establishment of a Building Exchange and as to what basis they were run on in the United States. Soon after application was made to the Ontario Government for an Act of Incorporation. The Builders' Exchange was formed for the purpose of providing valuable business information to its members. Immediately after we obtained our charter in February last, we enrolled 37 members, and from February up to the present we have issued certificates to 137 members. We have formed Sections known as the "Stone Cutters Section," "Builders' Laborers Section" and the "Carpenters' Section." The Plumbers' Section will likely be formed inside of the next week or so. The felt and slate roofers intend to form a section soon. A short time ago we decided that our rooms were too small; we hadn't the accommodation for meetings that we required, so we set about making arrangements for new quarters. We have agreements with the Masons' Section and the Stone Cutters' Section. I want to say to our members to-night, stick to your agreements. There has been a little friction in one quarter but this has blown over. We have a Board of Arbitration in connection with our Exchange to settle disputes. There are a few questions as between architects and the builders that might be put on a better footing. I am satisfied that the outcome of this meeting will be the issuing of

a few more certificates. I invite Mr. Smith and every member of the architects' association to our rooms at any time. You will find some of us there always. We intend to make this our place of business. Members of the Exchange gather here in the mornings, and transact general business here. I have again to thank you heartily for the manner in which you have responded to the toast of the Builders' Exchange."

The Vice-President, Mr. Geo. Moir, in replying to the toast, said: "I think the President knew very well that the time was short, and he also knew that I hadn't very much to say; and what little there was required to be said he took care to say himself. He has covered the whole ground most carefully. I can only endorse every word he has said in regard to the cordial relations which ought to exist between the architects and builders generally. I think we are all in the same boat. It is all very well to say that architects are with the proprietors all the time—I don't think this is the case."

Mr. Henry Simpson then favored the company with an exhibition of ventriloquism which occasioned great amusement. Many were the jokes got off at the expense of some of the members.

Mr. Harry Rich sang "Two Sweatearts" in capital style, and again had to reply to an encore. His encore number was "You Grow More like your Dad Every Day," which made a great hit.

The next feature of the programme was a short entertainment by Mr. George Oakley, illustrative of an Irishman's boyhood days on the farm. His impersonations of the cattle in the farm yard were very realistic.

The toast of "The Ladies," proposed by the President, brought forth a happy response on behalf of the fair sex from Mr. Elliott.

The company dispersed shortly after midnight with the feeling that they had spent an evening of solid enjoyment and profit.

WOODWORK IN ART.

I see it stated that Kerr Natter, the distinguished Austrian sculptor who recently died in Vienna, was in his youth a wood-carver, and by the practice of his humble craft rose to eminence in the highest of the plastic arts. Now, not a few of the best known artists of this country have served a similar apprenticeship. Sir Francis Chantrey, who died with a hundred thousand pounds, rose from the carving of ship's figure heads, through second-class portrait painting, to quarry in the gold mine of his very respectable, if not transcendent talents. The first serious efforts in art of Prof Herkomer and of Mr. Seymour Lucas were made with the gouge and chisel on a block of wood. James Burnet, too, practised as a woodcarver, and Opie professed the baser craft of a carpenter, and Romney of a cabinet maker. It is only another illustration of the truth that to the real artist the medium is nothing—nothing but a means to reach a higher end.—*London Graphic.*

A MANTEL SIX THOUSAND YEARS OLD.

It is seldom that wood, which was grown more than four thousand years before the Christian era, is used in the construction of a present day residence, and yet this really happened recently in Edinburgh, Scotland, where a mantel was fashioned from wood said to be six thousand years old. The wood, an oak tree, was found in a sand pit at Musselburgh, thirteen feet below the surface. Professor Geike, of the geology chair of the University of Edinburgh, after personally examining the strata in which the oak was found, said the tree, which was five feet nine inches in diameter, must be at least six thousand years ago, and describes it as a relic of neolithic man. It was in a fine state of preservation, due to the sand, and was easily workable.

FRAUDULENT CONVEYANCE—CONTRACTORS.

Where a firm of contractors who had undertaken to grade certain sections of a railroad, being unable for want of means to carry out their contract, conveyed to appellant all their property for equitable distribution among their creditors, appellant undertaking to complete the work and turn over the profits to the grantors' creditors after reimbursing herself for expenses incurred, the Kentucky Court of Appeals held (*Cavanaugh vs. Riley*) that the creditors of the grantors had no right to complain of the conveyance.

Mr. G. S. Dore has been appointed Sanitary Engineer of the city of Montreal, as successor of the late Mr. Radford.

The liquidator of the Danville, Que., slate quarry has sold the property to J. C. Stockwell and James Morrill, for \$5,800.

The Laprairie Pressed Brick and Terra Cotta Company has been incorporated at Laprairie, Que., to manufacture bricks, tiles, etc.

Messrs. Taylor Bros., of Toronto, have purchased a device which will enable them to utilize the gas from the coal used as fuel under steam boilers for burning brick.

The Douglas Pine, one of the gigantic trees of Canada, is named after its finder, David Douglas, a botanic discoverer, at one time in the service of the Horticultural Society of London. He was an untiring explorer, and ultimately lost his life in a pitfall made for trapping wild cattle, being gored to death by one of these savage animals, which was in the pit.

CLASSIC ARCHITECTURE IN RELATION TO DETAIL, WITH A FEW NOTES ON CONSTRUCTION IN BUILDING.*

BY ERIC MANN.

The object of this paper is to draw the closer attention of students and assistants in architecture to the necessity of carefully looking into the work of detail in connection with the preparation of working drawings. How often do we see, an otherwise good piece of work spoiled in finish by badly executed detail in the moldings of cornices, string courses, dormer windows, porticos, externally and in panelling, plaster work, and inside finishings generally. In this connection I would strongly recommend the student or pupil to work from the examples of Sir W. Chambers' treatise on the "Decorative Part of Civil Architecture," and the works of Palladio contained therein, and to make drawings of the orders and detail the various members, from the pedestal, with its base, capital and dodo; the column, with its base, shaft, neck and capital; the frieze and entablature with the cornice as given.

The enlarging of the members of the various parts of the five orders, gives a pupil an excellent training in proportion, along with which he learns how to construct the various moldings. Nearly all these moldings enter into the composition of daily practice in stone, wood, plaster or iron work, and it is of the greatest importance that a correct style in forming these moldings, and a sound knowledge with regard to when they are correctly formed and proportioned, should be cultivated, as we see so much bad work done, evidencing a half educated author in the designs being carried out, no matter however small or great the work may be.

As the orders of architecture are the basis from which we chiefly derive the decorative part of our work, a few words on each order in passing will be in place here. As you all know there are five orders. Three, said to be of Grecian origin, are called Grecian, by the names of Doric, Ionic and Corinthian. The remaining two, being of Italian origin, are called Latin orders; they are distinguished by the names of Tuscan and Roman. Little is known at what period the orders were invented, and of their improvement we can only judge by the fragments of antique structures built in different ages, and still to be seen in various parts of Europe, Asia and Africa. The existing specimens of classic often quoted as examples of all that is fine, graceful and beautiful in architecture, may be taken as the Temple of Concord, portico of the Pantheon, and other parts of this structure in the Doric and Ionic; the arch of Constantine, Interior of Pantheon, Temple of Bacchus, and others, in the Corinthian, not forgetting the great Colosseum in Rome, a specimen of Doric treatment. Besides these, in the sixth, or composite order we have the great Arch of Titus and others.

We find that a great author in classic architecture, named Perrault, has compiled a statement of comparative proportions of the various celebrated buildings in ancient Italy and Greece. His great intelligence and depth of research, has rather upset the pretensions of the great Vitruvius on the diminution of the shafts of columns.

A great deal might be here said on the subject of classic architecture, but the short comments I have made will be sufficient to illustrate the connection between the subject, and the object of my paper.

Following on this, I may add a few more words on the pupilage system in the old country. The pupil there is indentured or bound by a deed to be so many years, say five, in the office, and has to pay from three to five hundred dollars for this privilege. During this time he is put through a course of training, but at the same time is subservient to the rules of the office, and has to give all his time and work for the benefit of his employer. I have known pupils who turned out fairly good draughtsmen in two years, and are giving the benefit of their work to the architect whose office they are in.

This practice of working at classic architecture from books and examples is what is generally adopted in training a pupil for the first year, and if he is apt and likely to have a taste for the profession he has chosen, he will find that what I have said in the early part of this paper is not without its weight.

Although this reference to pupilage may appear like a digression from the object of my paper, yet it may serve to show the idea I have in connecting the early training with the successful and unsuccessful draughtsman.

Again, the careful working out of detailed work is one of the pleasantest parts of the office routine. The plans and elevations require to be well studied. The parts requiring drawing to enlarged scale must be correctly and carefully done, every molding and part exact as to size and figure; without this, full sized drawings cannot be correctly turned out. The pupil will find it comparatively easy to make a full sized detail, if he has got a perfectly correct enlarged scale drawing in front of him, and on this principle alone rests the secret of turning out correct detail for construction.

It is an evident matter to tell by the general design and detail of a building whether the architect employed has been carefully educated or not. I would like to draw your attention to the front or facade of St. Peter's Cathedral now being erected on Dominion Square. It is supposed to be an example of classical architecture, but if you study the detail after a course of Palladio, you will see how faulty it is. The pilasters, pediments, etc., of the front windows, bases and shafts, moldings, etc., are all out of the proportion laid down by the ancients, and which are accepted and worked upon at the present day. We have but few examples in Montreal of this class of works. The bank of Montreal is one specimen worth looking at, however.

Closely following on "detail," we find one of the most important elements embodied in the work of the architect's profession, namely, construction. By construction we mean the creation in solid materials bit by bit of the architect's conception and designs in a thoroughly practical, sound and workmanlike manner, and this is not, as it may look at first sight, such a simple task; on the contrary, it is the alpha and omega of the whole building, and demands close attention and watchful application on the part of the architect, because we consider that the architect is the creator of the structure as shown in his completed drawings, and we take it for granted that he has the genius and judgment necessary to carry to a successful issue the work of his brain and hands. The builder is the instrument set to carry this work on in accordance with the architect's intelligent plans and detail drawings, and under his instructions and directions. At this point, I would like to say, that builders as a general rule, are rather inclined to underrate the importance and nature of the architect's position, and to relegate to themselves a number of the duties devolving on the architect alone, and do not even stick at offering advice and guidance to the architect's clients or even be clients. This may be another digression, but I think that the profession ought to be upheld and its dignity fully maintained by us all.

The primary duty in construction, is a proper superintendence of the work during its progress. The foundations, on the sufficient construction of which so much rests, ought to be put in on a well levelled bed, free (if on a good earth bottom) from irregularities of surface, round stones, etc. The stones for footings should be large, and as much of a thickness as possible.

*Paper read at the Third Annual Convention of the Province of Quebec Association of Architects.

The corners in all cases should have large heavy stones, and the joints broken so as to prevent an angle joint.

The building of rubble masonry represents a sort of puzzle, but the best built walls show a fair even surface on both faces, and also show in construction a sufficient number of through or bond stones in the wall. What exactly is a "sufficient" number, it is rather difficult to say, but an intelligent mason is always ready to do what is right on the architect's direction. Nothing is so miserable in building to took upon as a weakly built wall of small stuff packed full of rubbish and bad mortar from the trowel, and sad as it is to relate, this work can be seen going on here and there in the city to-day.

The proper external pointing of walls is a very vital matter, and one sometimes neglected, especially late in the season, when the mason is anxious to fill in round the walls; especially strong mortar ought to be used for this work, and the wall plentifully pointed and filled from the footing up as the work advances.

The matter of carpenter and joiner work is what may be termed the "skeleton" of the building, and in its fitness of framing and soundness of material, lies in a very large measure the quality of the house after one year's occupation. How often do we see houses going sadly to pieces after one year's trial. The heating up begins to try the woodwork sadly. The studding, joisting, etc., begin to shrink and go, with the result that the plaster work shows gaps and cracks, notably in angles and staircases. A certain amount of this almost inevitable shrinkage is generally conceded and looked for, but if the timber is well dried and nailed, it is not nearly so marked, as in the case of wet stuff, which does not appear damp when being put up. In arranging the joisting of a building it is a good plan to have all the positions where plumbing work is situated trimmed "clear," with double trimmers, so as to prevent any cutting of joist for bends, etc.; also all openings to staircases, etc., ought to be double trimmed.

To prepare a building for the plasterer requires some thought and care. In the summer season it is not so particular, but in all cases we must see that the rough floors are well laid; and partitions all in place, the door casings all on, the grounds for plaster, carefully and well nailed on, care to be taken that they be left quite level and straight on face, as the neglect of this leads to unevenness in the skirtings, or "chopping," and consequently the loosening and breaking of the bond of the plaster. All roof openings should be attended to, and all necessary beads and casings put in place.

The hanging of the inside doors is another matter for attention. A good joiner will hang a door so that the door when shut appears about the same on both edges, but a badly hung door usually catches on either top or bottom hinge and presses in on the casing, all owing to not having been hung truly plumb; the casings of course must be quite square and true when put up. Locks may also be put on to look very slipshod like, and not present that level, clean surface which the face plate ought to show on the door rail. The putting on of architraves is also important, especially when the skirtings and architraves are of especial design—the fitting at angles shows at once, and declares itself a poor or a good job.

In the matter of plumbing, gas and sanitary work, a very great deal has been said and written. You are all aware that our plumbers are not plumbers at all, but "sanitary engineers." I would, however, much prefer to deal with a good, sound, practical plumber, and there are many such in our own city. I consider that in all branches in the complex construction of a building, the architect's attention and vigilance are essentially necessary, and the plumber's "man" requires to be directed, however little he may like it, and now and then corrected, even. The improvements made in sanitary ware and the adoption of all iron soil and inside drain pipe, the ventilation of soil pipes, inside closets, etc., has made our houses very superior to what they were some fifteen years ago. I strongly advocate the system of open all ware, w. c. basins set on slate or marble slabs, copper lined cisterns with self-action, steel sinks, and where it can be afforded, white ware sinks, as for baths; porcelain is very fine, but is exclusive as to cost. Copper lined is a good bath, also, and white ware open basins are to be recommended. For the soil pipes, should they have to pass under the cellar floor, extra heavy iron pipe should be used, enclosed in a trench covered on top with heavy wood covering, so as to be got at the entire length at any time; if possible, soil pipes are as well to be run on the wall, fully exposed to view, and every bend and connection accessible from bottom to top.

A great deal more might be said on this subject—in fact it is almost endless—but as long papers are not necessarily interesting ones, I will conclude by hoping that this one may have been found of some interest to most of you, and to join the President in his hope that my conferees will see their way to giving us papers as the season advances.

HAMILTON CORRESPONDENCE.

HAMILTON, Sept. 23rd, 1892.

Editor CANADIAN ARCHITECT AND BUILDER.

SIR,—In your issue of this month, your youthful correspondent at Hamilton has over-reached himself in his anxiety to belittle the sculptor who executed the carving on the Grand Opera House here, and who is now engaged on Mr. Geo. T. Tuckett's palatial residence. The mean attempt was made because that gentleman laughed at a stupidly crude and utterly impracticable drawing that the youth had made for the sculptor to carve from for Mr. Tuckett's building.

To show the absurdity of this (not to say wilful and malicious) mis-statement, I may state that no carving was done on Mr. Tuckett's residence until the 15th of September, several days after your valuable journal reached me. The sculptor, when I drew his attention to the article, only smiled at the weak attempt of the lad to injure his reputation as an artist, as well he might, a reputation indelibly carved on most of the public and many of the private buildings that adorn, not only Hamilton, but many of the other cities of Canada.

Yours truly,

DORIC.

The life classes in connection with the Toronto Art Students' League have resumed their work, with every prospect of a successful season before them. The numerous sketches adorning the walls of the League rooms in the Imperial Bank Building bear testimony to the industry of the members during the summer months.